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Original Articles.

SPLENOMEGALY WITH ANÆMIA AND HÆMORRHAGES.*

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A BOY aged 8½ years was observed by his mother to have a little swelling of the abdomen in July, 1913. This enlargement of the abdomen continued to exist and increased. He was said to have had an attack of jaundice in October, 1913; his complexion was said to have been paler, and in February, 1914, a severe epistaxis occurred. He subsequently developed an eruption of small purpuric spots and an attack of hæmatemesis a few days before he was admitted to Charing Cross Hospital in November, 1914. Since that date he had been under constant observation. At first his condition became worse, and there was another attack of hæmatemesis with copious melæna. The lad was pallid, had a slight degree of protrusion of the abdomen; the spleen was markedly enlarged, reaching the umbilicus; the lower edge of the liver could be felt below the costal margin, and the organ probably extended higher in the abdomen than normal, and was probably enlarged; ascites seemed to be present. The blood had been frequently examined, and the following reports were characteristic:

* The case was shown at the Clinical Section of the Royal Society of Medicine on February the 12th, 1915.

December the 18th, 1914. Blood count: Rouleaux and fibrin formation fair.

Red blood corpuscles=2,900,000 per c.mm. Hæmoglobin, 30 per cent. Colour index, ·5. White blood-cells, 840 per c.mm. Polymorphonuclear leucocytes, 57·5 per cent. Small lymphocytes, 35·0 per cent. Large lymphocytes, 1·5 per cent. Eosinophils, 1·5 per cent. Basophils, 1·0 per cent. Large hyaline, 3·5 per cent.

January the 12th, 1915. Blood count: Rouleaux formation poor; fibrin formation good.

Red blood corpuscles=2,630,000 per c.mm. Hæmaglobin, 30 per cent. Colour index, ·5. White blood-cells, 860 per c.mm. Polymorphonuclear leucocytes, 55 per cent. Small lymphocytes, 35·5 per cent. Large lymphocytes, 5·0 per cent. Eosinophil, 1·5 per cent. Large hyaline, 3·0 per cent. Slight poikilocytosis.

The fragility of the red blood-cells was estimated on December the 21st, and was normal. There was no history or indication of syphilis, and the Wassermann reaction was negative (December the 20th, 1914).

Family History.—The father and mother appeared to be healthy. There were 3 sisters and 1 brother, who were in good health. An uncle on the father's side had hæmatemesis associated with a swollen abdomen, but had now recovered his health. An uncle on the mother's side had been treated for hæmatemesis and ascites.

The question of removal of the spleen arose, and has been carefully considered in conjunction with my surgical colleague, Mr. Stanley Boyd, who has had experience of the operation of splenectomy, and my friends Dr. Parkes Weber and Dr. G. A. Sutherland. The chief contra-indication to operation was the slight enlargement of the liver, possibly due to cirrhosis, and the slight degree of ascites which seemed to be present.

During the following month the lad's condition remained very much the same as when shown to the Section. There was naturally a gradual failure of strength, perhaps a slight increase in the amount of abdominal fluid effusion, but very little change otherwise; one or two slight attacks of hæmatemesis occurred.

Then on March the 19th there occurred a sharp rise of temperature to 102° F., falling to normal the same day—rising to 101·5° on the 20th, falling to normal on the morning of the 21st; rising to 100·6° on the 22nd. On the 23rd, 24th, and 25th the temperature did not rise above 99·6°. During this pyrexial attack, for which no definite cause could be ascertained, the lad remained remarkably well; except for the rise of temperature there was no evidence of any change occurring.

On February the 26th there was a sudden rise of temperature between 6 and 10 o'clock from 97·8° to about 106·2°, with rigor. The lad complained of a certain amount of pain in the abdomen, and he vomited a little, but relative to the remarkable rise of temperature very little evidence of illness was present. The abdomen remained flaccid though a small quantity of fluid was still present, the spleen did not enlarge, the liver remained palpable below the costal margin. The temperature fell suddenly on the morning of the 27th to 102·4°, rising in the afternoon of that day to 104°. On the 28th it fell to 99°; on the 29th it was subnormal, and remained normal subsequently during his stay in the hospital.

The day after the rigor and sudden rise of temperature the lad seemed to be almost in the same condition as before. Those in attendance were very much struck with the fact that in spite of the very severe febrile reaction the patient showed so little sign of illness. Within a few days the abdominal fluid was observed to increase in amount, and as by this time the diagnosis had become fairly obvious, and at any rate the question of operation could no longer be considered to be advisable, the lad was taken home by his parents.

He was seen on one subsequent occasion at his own home about a fortnight after discharge from the hospital. He had then obviously lost strength very markedly, and the abdomen was much distended with fluid. A few days afterwards he died. Unfortunately a post-mortem examination could not be obtained.

There can be no doubt that in the case of this boy the symptoms —splenomegaly and anæmia—were actually associated with portal thrombosis, and that almost certainly the portal thrombosis was the primary cause of the whole condition. The type of pyrexia, especially from the point of view of diagnosis, deserved attention. The degree of fever would certainly in other cases have given rise to symptoms of severe toxæmia or septicæmia, but in this case the patient's general condition was remarkably little disturbed. I have very little doubt that the febrile attack was associated with the increase and spread of the portal thrombosis—probably widely in parts of the portal circulation hitherto unaffected. In the dissection of a previous case ('Proc. Roy. Soc. Med.,' 1914, vii. (Clin. Sect.), pp. 90–97; 137–139) I found that the stage of thrombosis associated with organisation of the clot and of fibrous occlusion of the veins was most marked about the junction of the portal vein with the splenic, superior and inferior mesenteric veins, and that the more recent clot was in the peripheral portions of these veins, especially of the splenic. It

appeared probable, therefore, that the remarkable rise of temperature in the present case was associated with a spread of the thrombosis, possibly of an extensive nature, through portions of the portal circulation at some distance from the portal vein itself. The increase of the abdominal effusion would readily be accounted for by such a lesion. The actual cause of the thrombosis was still a matter for investigation, but it is highly improbable that the thrombosis in such cases is due to a bacterial infection resulting in any of the forms of abdominal or intestinal inflammations with which we are familiar. From the point of view of diagnosis the occurrence of fever of this character in such cases would probably assist in the recognition of portal thrombosis.

THE CURE OF SQUINT.*

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(*Continued from* p. 45.)

The Technique of Operation.

The number of operations that have been devised for the correction of squint is very great. But they fall into two classes. Those that aim at altering the state of the contracted muscle, and those that are directed to the elongated muscle. The first attempt at operation appears to have been made by John Taylor,† of Norwich. He was born about 1703, and is reported to have travelled through Europe and "cured" squint in the following fashion: The possessor of a cast in the eye was approached with some cutting instrument, a cut was made in the conjunctiva at the inner canthus, and immediately a pad was put over the fixing eye so as to compel the use of the squinting eye. The operator made much of the mystery of his performance, and herein savoured of the quack. Some have doubted if a tenotomy was really made, but there is good contemporary evidence that he did put eyes straight by his operation.

Tenotomy held the field for many years. It was the one and only mode of treating the deformity. It was practised in every degree of severity; not only was the tendon cut, but the check ligaments, or the extensions of Tenon's capsule, were widely severed

* A paper read before the West London Medico-Chirurgical Society.

† "An Account of the Mechanism of the Eye," 1727.

in the desire to get a full effect. In some cases the eye was even forcibly diverted to the opposite side by a suture. The results of these sweeping measures were the reverse of happy, often there followed at no distant date a squint in the opposite direction. Tenotomy is an unsatisfactory measure, for two reasons: First, the effect cannot be anticipated; in some subjects a minimum tenotomy will produce little apparent effect, in others a tenotomy of apparently the same delicacy will cause a considerable effect, even more than was intended. The other drawback is the loss of control over the eye that follows a tenotomy of even moderate extent. The eye is held in position by the embrace of the ocular muscles and tendons; if one of these is cut it slips backward to a certain extent and loses just so much of its embrace of the eye, the eye is allowed to come forward, it is proptosed; and if at the same time, as is by no means uncommon, the pull of the altered tendon should come upon the tissue beneath the caruncle, there is produced an unsightly hollow at the inner canthus. Recently I had a patient from the antipodes; by no stretch of imagination could he have been called an attractive-looking man, but his eyes made him positively hideous. Each internal rectus tendon had been cut for squint when he was a boy; the eyes were divergent, with marked proptosis and sunken caruncles. When the regions of the tendons were explored these were found to be completely separate from the globe and attached beneath the caruncle. Even without such gross defects there is in many cases loss of power of adduction and of convergence.

But one good came out of these disasters. The bad effects had to be remedied, and the attempt led to the operation of advancement. Instead of letting loose the eye by cutting a tendon, it was now sought to pull the eye into a right position by advancing or shortening the tendon on the other side of the globe. The first attempt at such operation was made by von Graefe. He cut both internal and external tendons, and then rotated the eye in the direction he desired, fixing it there by means of a suture carried over the cornea. Needless to say, the attempt did not succeed, but it led to other attempts and to better success. There are now many methods of exposing an external tendon, cutting it, removing pieces, and resetting the tendon to the globe in advance of its former position. The operation is one of the most difficult and delicate of tendon operations, and the success is not commensurate with the labour. The risks of defective operation, or of failure even after a good operation, are great. The bleeding caused by the severance of the tendon obscures the field, even adrenalin will not check the flow

from the artery in the axis of the tendon; there is uncertainty of the exact replacement of the tendon in its original axis; and even when these difficulties are overcome there may be failure owing to the cutting out of stitches, for the silk has to unite a frail tendon by an insecure grip to the short-fibred sclera. When there is taken into account the tug of the antagonist, it is not to be wondered that too often the operation fails, and the last condition is worse than the first. Some surgeons do away with the strain of the internal tendon by cutting that first, but to combine a complete tenotomy with an advancement is only to aggravate the defect of the tenotomy and the risk of a subsequent divergence.

These difficulties, and the scarcity of hospital beds wherein to keep the many squinters who needed operation, led me to experiment with the view of getting some form of operation that might be done on out-patients, with good hope of success, and which, by its very nature, would not leave matters worse should the operation fail for any reason. For the past four years I have practised a method of operation that fulfils these needs. Close on two hundred cases have now been done. All, except a few show cases, done in different cities, have been out-patients, that is, they were done in the out-patient department, they were sent home the day of the operation, and were allowed to be up and about. The results of the method are far superior to the older open methods, as will be seen by the following figures:

*The First Hundred Cases and their Results.**

Sex.—Males, 43; females, 57.

Ages.—First decade, 48; second, 39; third, 12; later years, 1. In the first decade the distribution was as follows: One year or under, 1; two, 0; three, 3; four, 3; five, 9; six, 6; seven, 7; eight, 9; nine, 8; ten, 3.

Variety of squint operated upon:

Convergent, right eye	20
,, left eye	37
,, alternating	36
Divergent	6
Vertical	1
	100

* A detailed account of these cases will be found in the "XVII International Congress of Medicine (London), Ophthalmology," part ii, p. 313.

Operations performed.—In 81 cases the effect was obtained at one time of operating, in 19 part effect was obtained, to be completed subsequently or on the other eye. Two-time operations were frequent at the outset of my endeavours, now they are rare, and only required in high degrees of squint.

The summary of the results obtained is as follows :

Binocular vision restored (tested by the "diaphragm test")	4
Eyes straight and showing no movement on alternate covering	36
Remaining error less than 3 degrees	22
„ „ about 5 degrees	23

(The above groups may be counted successes and number 85 per cent.)

Remaining error under 10 degrees	9
„ „ 10 to 20 „	4
Relapse six months after operation during a relapse of severe keratitis	1
Over-correction found six months after operation (also a case of keratitis)	1

The cases were followed up for at least one year after operation, and in many cases photographs of the state before and after operation obtained. The 13 cases in which the effect was partial only have since been corrected.

It may be asked why the number of cases in which there was evidence that binocular vision was restored is only four. The answer to that is to be found in the ages at which the patients were operated upon. No less than seventy-eight had reached an age at which restoration of the fusion faculty in any degree that could be determined by test would be practically impossible, these were all over the age of seven years. But if they did not obtain this perfection they were at least consoled in the removal of a gross deformity, and some have been able to obtain work that was denied to them before.

The Author's Combined Operation.

The shortening is done by a reefing-advancement operation. In this operation the tendon is not cut, neither is it exposed to view. The upper and lower edges of the tendon to be shortened are cleared by two buttonholes cut through the conjunctiva and Tenon's capsule, the tendon surfaces are freshened by a rasp, then

special forceps are passed through the buttonholes to secure the tendon, movement of the forceps folds or reefs the tendon very much in the fashion that the laundry-maid treats linen-frills in goffering. The reef is then sewn up, or sewn up and advanced, as the case indicates; and the antagonist is lengthened by a graded partial tenotomy—the "jigsaw" operation.

The operation is variable with the degrees of the squint: (*a*) For squint up to 15° reefing only may be done, the reef is graded by the set of the reefing forceps, in adults each millimetre of shortening will secure about 2·5° rectification, in children about 2°. (*b*) In high degrees of squint an 8 to 12 mm. reef is made, secured by sutures, and then drawn forwards towards the cornea, and fixed tightly to the globe by inserting the sutures into the limbus before tying them. (*c*) Both procedures are helped by the lengthening of the antagonist by the "jigsaw" operation, this in itself secures some 5° of effect, but more certainly it allows the full effect of the shortening to be secured. When the "jigsaw" operation is done the great drag of the internal tendon against the external tendon is for the time in abeyance, and the two sides are balanced during the healing process.

Reefing Advancement.

Instruments required: Reefing forceps, tendon rasp, scissors, fine-toothed forceps, a good needle holder, three No. 4 curved needles threaded with double No. 1 silk 6 in. long (one black silk, two white), a speculum that will keep the lashes out of the way. (Since doubled silk is used calyx-eyed needles are preferable, for a bad needle can be removed during the course of the operation by breaking the eye of the needle and slipping on another without disturbing the suture.)

The steps of the operation are as follows: (1) Securing the eye —the anchor stitch; (2) locating the tendon to be reefed; (3) the incisions to clear the upper and lower edges of the tendon; (4) rasping the tendon; (5) inserting the reefing forceps and reefing the tendon; (6) securing the base of the reef with sutures; (7) advancing the reef.

Step 1: *Securing the eye* (Fig. 2).—An anchor stitch is passed through the conjunctiva and sclera close to the limbus. Upon the correct placing of this stitch depends the whole accuracy of the operation. The suture serves to fix the eye during the operation, and it forms the fixed point to which reference is made in cutting the buttonholes and placing the advancement sutures, and in

centring the "jigsaw" operation. The black silk is used to give distinction.

The eye is then adducted by means of the anchor stitch and held by an assistant.

Step 2: *Locating the tendon* (Fig. 2).—In many eyes the fibres of the tendon can be seen shining through the conjunctiva. When the actual fibres cannot be seen the position of the tendon is

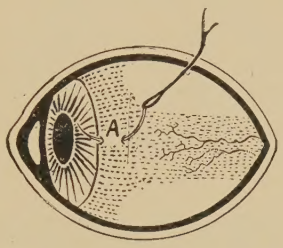

Fig. 2.—Step 1: Inserting the anchor stitch in the axis of the tendon. Step 2: Locating the tendon. The shading indicates the differences in colour (see text).

obvious owing to differences in the colour of the tissues. Beyond the cornea is a circular faintly bluish band of sclera, behind this there are three distinct patches, a median band running backwards of faintly bluish tint, and above and below this band two areas of creamy tint. The blue band is the site of the tendon, and the creamy areas are caused by the opaque Tenon's capsule, where

Fig. 3.—Tendon rasp.* A squint hook, the inner and outer edges of which are cut in fine teeth; used to freshen the surfaces of the tendon to be reefed. The other end bears a prong pierced with a conical eye; this is the needle-lifter; with it counter pressure is made during the passage of the needle, and by giving it a half-turn the needle is gripped and drawn out of the tissues.

it is not pressed down by the tendon. These features are best seen in the young and in daylight.

Step 3: *The incisions to clear the upper and lower edges of the tendon* (Fig. 5).—Two buttonholes, about 5 mm. long, are cut through the conjunctiva right down to the sclera. They should be close to the canthus, and one above and the other below the tendon, and separated about 7 mm. They are parallel to each and to other

* The instruments figured are made by Messrs. John Weiss and Son, Oxford Street, W.

the tendon edges. If a *fat* fold of conjunctiva be lifted with the toothed forceps one cut should go through the conjunctiva and capsule and expose the pearly sclera at the bottom.

Step 4: *Rasping the tendon surfaces.*—This is done to induce adhesions between the folded surfaces. The rasp is a squint hook with sharp teeth on its edges (Fig. 3). The rasp is inserted under the tendon, and rubbed to and from the insertion against the pressure of the finger-tip pressed on the conjunctiva; then the rasp is inserted above the tendon and under the conjunctiva, and the upper surface is rasped against the pressure of the globe. When this is done the tendon shows red under the conjunctiva even when the adrenalin is acting well. Finally, the rasp is pushed under the conjunctiva from one buttonhole to the other to bring out the capsule, a piece of

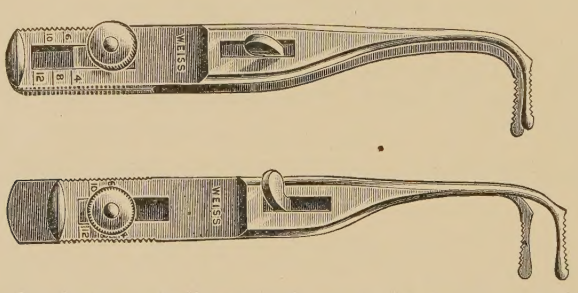

Fig. 4.—Reefing forceps. In the upper figure the blades are coincident. The scale behind the screw-clamp shows that a reef made by the forceps set thus will shorten the tendon 4 mm. In the lower figure the blades are separated to the maximum, the scale shows that the forceps set thus will shorten the tendon 12 mm.

which is excised to make a free passage between conjunctiva and tendon for the reefing forceps.

Step 5: *Reefing the tendon* (Figs. 4, 5, and 6).—The reefing forceps is like a pair of squint hooks with short flat handles. The handles fit into each other and are secured by a milled nut, but they can be slid along each other so that the hooks may coincide or be separated The handle is graduated and marked 4, 6, 8, 10, 12. If the blades are set to any one of these figures, and a piece of tape is placed between the hooks, rotating the forceps will fold up the tape by just so many millimetres as the figure on the blades indicate. This is exactly what is done to the tendon.

The forceps blades are set to coincide, and lightly locked with the milled nut. Then they are held over the external canthus with the hooks towards the eye and the blade with the scale uppermost. The hook of the lower blade is passed into one buttonhole and

beneath the tendon, just as if it were a squint hook, then it is slightly withdrawn to allow the conjunctiva to be *lifted on to* the hook of the upper blade. The tendon is now between the hooks, they are pushed home until the two points emerge from the other buttonhole.

The set of the blades is now adjusted to the amount of reef required. The lower blade is held in the left hand, the milled nut

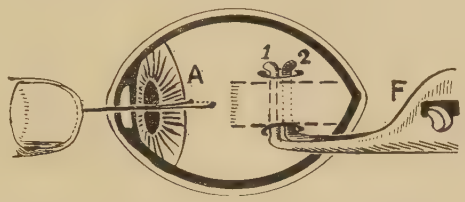

Fig. 5.—Steps 3 and 5. The eye is held by the anchor-stitch A. The buttonholes are cut through the conjunctiva or Tenon's capsule. The reefing forceps (F) has been inserted so that the blades are above and below the tendon and beneath the conjunctiva. (*In this and subsequent figures broken lines indicate subconjunctival parts.*)

loosened, and the upper blade pushed forwards until the rear of the bed plate of the milled nut points to the number required; the milled nut is then locked, and the turn-pin turned to clamp the blades.

Now the handle of the forceps is lifted and gently turned across the face so as to lie on the nose; during this movement the eye will

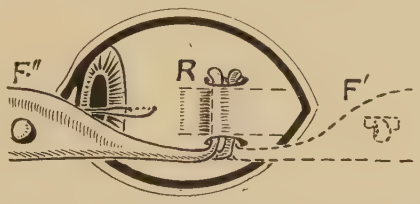

Fig. 6.—Step 5: Rotating the rasping forceps. From the first position, F′, in which the forceps secures the tendon, the handle is turned across the face to lie on the nose at F″. The tendon is reefed. (See effect in Fig. 8.)

be seen to turn outwards. The tendon is reefed. If the effect is not enough the forceps can be turned back and the blades readjusted as required. Rotation of the forceps causes no discomfort if it be done gently.

Step 6: *Securing the base of the reef with sutures* (Figs. 7 and 8). —The reef is fixed by sewing up the base on each side. Two sutures are necessary. The needle is gripped in the holder close to the eye to leave as much of the needle projecting as possible. The handle of the reefing forceps is lifted so that the base of the reef is

seen on the side towards the cornea. The needle is passed beneath the cut edge of the conjunctiva, dipped beneath the lowest hook of the forceps, and made to pierce the base of the reef; the reefing forceps are replaced on the nose, and the needle point will be seen

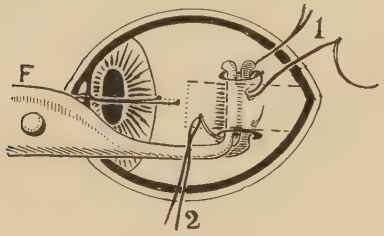

Fig. 7.

Fig. 8.

Fig. 7.—Step 6: Securing the base of the reef with sutures. (1) The first suture is seen in position; the needle has been passed through the base of the reef twice, so that a loop or bight of the suture secures reef. (2) The needle is shown entering the conjunctival buttonhole, passing below the reefing forceps, and coming out through the reef and conjunctiva.

Fig. 8.—Step 6: Diagram to show path of needle through base of reef. N. Needle. R. Reef. cc. Conjunctiva (small "c" indicates conjunctival buttonhole). T. Tendon. S. Sclera. Forceps blades seen in cross section.

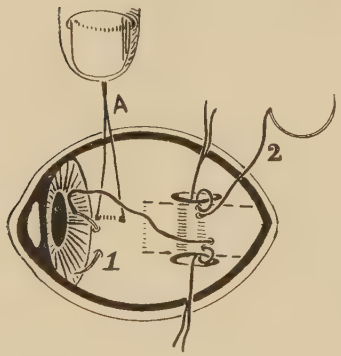

Fig. 9.

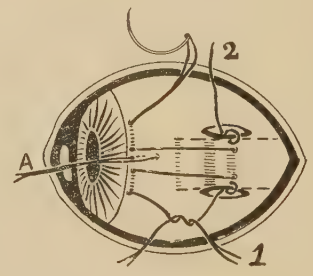

Fig. 10.

Fig. 9.—Step 7: Advancing the reef. The eye is held steady by means of the anchor stitch A, and the needle of the lower suture made to traverse the layers of the sclera close beside the anchor stitch. Next, the upper one is inserted into the sclera in the same way.

Fig. 10.—Step 7: The advancement sutures are all in position ready to be tied and draw forwards the reef.

projecting beneath the conjunctiva toward the outer canthus. The hole at the end of the "needle lifter" (Fig. 3) is pressed on to it, and with a half-turn the needle extracted. Once again the needle is passed through the reef in exactly the same fashion, so the base of the reef is gripped in the bight of the suture. This is done on

both sides; then the locks of the forceps are loosened, and the blades drawn out of the reef.

Step 7: *Advancing the reef* (Figs. 9 and 10).—Each of the sutures that hold the reef is fixed in turn into the sclera, one on each side of the anchor stitch and at right angles to it. The needle is gripped in its middle by the holder, the eye is steadied by the anchor stitch held at right angles to the tendon, then the needle is made to penetrate the conjunctiva and upper layers of the sclera close to the limbus for about 3 mm. The needle is inserted close to the anchor stitch and pushed away from it so that the eye is kept quite steady. The suture is altogether outside the conjunctiva except where it

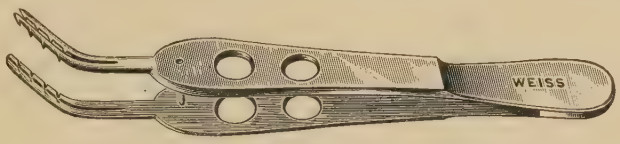

Fig. 11.—Director forceps. For use in tendon lengthening or "jigsaw" operation.

pierces it to grip the sclera at the limbus, and again where it dips down to secure the reef. When the sutures are in position, each is tied in the first stage of a surgical knot and pulled tight; by this means the reef is drawn forwards to the cornea and pressed firmly down to the sclera. Then the knot is completed and the sutures cut short to 5 mm.

Reefing without Advancement.

The operation is essentially the same as the foregoing, except that the sutures that secure the base of the reef are tied at the end of Step 6 (Fig. 8). So soon as the base is secured on each side, and the reefing forceps withdrawn, a small glass bead is threaded on to each suture and the suture tied over it. The operation is good for small degrees of squint when combined with the "jigsaw" operation. It has the advantage that the scars of the conjunctiva are wholly beneath the canthus and invisible in straight forward vision.

Lengthening the Antagonist—"JIGSAW" Operation.

The steps of the operation are as follows:

Step 1.—The tendon is exposed by the open method, lifted on a squint hook, and the point of the hook cleared so that there is a free passage under the tendon. It is quite unnecessary to waste time on cleaning the edges of the tendon.

Step 2.—The director forceps are taken up and the under blade slipped under the tendon on the one side whilst the hook is being withdrawn from the other.

Step 3.—The "director forceps" (Fig. 11) are now accurately centred on the axis of the tendon. This is done by seeing that the notch on the upper blade is exactly in line with the anchor stitch on the other side of the cornea; notch and stitch must be in a line with the exact horizontal meridian of the cornea. This centring is essential, and it enables one to be quite independent of the edges of the tendon which may be masked by capsule. The forceps are closed and the tendon held fast.

Step 4.—A sharp-pointed knife is used to make the middle cut (Fig. 12 (1) *b*), which must extend from the edge of the tendon nearest the shank of the forceps, to just behind the notch on the middle of the blades. The cut will sever two-thirds the breadth of

(1) (2)

FIG. 12.—"Jigsaw" operation. (1) Shows: *b*. The middle two-thirds cut. *aa'*. The two lateral half-cuts from other edge of tendon to axis *c*. (2) Tissue stretched after cuts are made, showing band uniting axis of tendon.

the tendon. It is made by running the knife along the groove in the lower blade of the forceps. The knife is now laid aside.

Step 5.—The scissors are taken up and with them two cuts are made, one on each side of the forceps from the points up to, but not beyond, the notch on the blade (Fig. 12 (1) *a*, *a'*). These two cuts are, therefore, made from the opposite side to the central two-thirds cut, and they sever half the width of the tendon only. The tendon will now extend lengthwise without losing its attachments or alignment (Fig. 12 (2)). The forceps are now withdrawn, and the conjunctiva closed by a single vertical stitch.

The operation needs the utmost delicacy and accuracy for its successful performance. If the middle cut does not cross the axis of the tendon there is no result; if it should be too extensive, there is danger of complete tenotomy. If the two half-cuts are unequal, there will be a vertical deviation. When all the cuts are just right the effect is excellent, and the combination of this "jigsaw" operation with the reefing or reefing-advancement will give the most happy result. Immediately after the operation it can be demonstrated that the eye retains good lateral movement, showing that the

new relative positions of the tendons are not obtained by any loss of power.

Varying the Operation to effect Vertical Deviation.

Occasionally a convergent squint is combined with some vertical deviation. This can be corrected by varying the "jigsaw" operation. The tendon is secured in the director forceps as before, but only two cuts are made athwart it, one from each side, and each cuts through two-thirds the breadth of the tendon (Fig. 13). The eye will turn upwards or downwards according as to the position of the cut nearest to the insertion into the globe. If this near cut be made from the upper edge the eye will turn up; if it be from the lower edge the eye will turn down. A very considerable deviation can be obtained by this method to five degrees or more.

(1) (2)

FIG. 13.—"Jigsaw" operation to effect vertical deviation. (1) Two sections made from opposite edges of tendon, each cutting two-thirds. (2) Shows effect of making cut next insertion from *upper* edge of tendon; the eye is turned *upwards*.

General Remarks.

These operations are much quicker to perform than to describe, and the reefing operation gives a sense of security lacking with the ordinary open advancement operation. Since the conjunctiva is cut very little, and then only in buttonholes parallel to the line of the vessels, there is practically no bleeding when adrenalin is used; swabs are scarcely wanted. The puckering of the conjunctiva speedily smooths out, and after a month there is no more than a little thickening and the marks of the sutures. The reef leaves no permanent lump; it soon becomes so flattened to the globe that it is not possible to tell what form of operation has been done.

A local anæsthetic is all that is needed when patients are of an age to lie quietly. Equal parts of 5 per cent. cocaine with 1 : 1000 adrenalin gives excellent results. More time for the installation should be given for those patients who have hot faces than for those with cool skins; the former do not react so well to adrenalin. Pain is only complained of when the needles are being pushed through the

base of the reef, and that can be reduced by the careful counter-pressure with the needle-lifter; again, there is momentary pain when the sutures are drawn tight.

Good daylight is essential to successful operation; artificial light is never so good, as it obliterates the distinctive colours of the tissues.

Bandaging after operation: The operated eye only should be covered. The bandage must be so arranged that the glasses can be worn immediately after operation.

The eye operated upon should be irrigated every day whilst the stitches are in place. The stitches are removed on the eighth day. Care must be exercised in their removal, for the bights of the silk hold remarkably well, especially in adult eyes. The knots will be found hidden under the external canthus, if a loose end of one be lifted and pulled on gently the two limbs of the suture will be seen; one limb is cut, and then gentle traction, if necessary, aided by counter-pressure against the eye, will ensure removal of the silk, which comes curling out like a worm.

After the removal of the stitches all bandages should be removed, and nothing further need be done to the eyes. The glasses must be worn, that is a point that must be insisted upon, for many parents hope that after operation glasses may be discarded; if this is done the same conditions of difficulty that originally overturned the brain control of the eyes and caused the squint are re-established, and the good effect of the operation may be neutralised. It is important to discard the bandages as early as possible, to bring the two eyes into early coincident working, so as to secure the continual exercise of any fusion faculty that may be present. For at least one month after operation the child should not read or use picture books, but be free to play outdoors as much as possible.

SINGLE PELVIC KIDNEY.*

By J. D. Rolleston, M.D.

The specimen to be described was taken from a mentally defective boy, aged 14 years, who died of septic scarlet fever on the eleventh day of disease. There was a trace of albumin in the urine during

* The specimen was shown at the Section for the Study of Disease in Children of the Royal Society of Medicine on November the 26th, 1915, and is now in the Museum of the Royal College of Surgeons.

the nine days that he was in hospital, but there were no other renal symptoms.

Post mortem no kidneys were found in the usual situation, but on the right side and within the brim of the pelvis was a single kidney lying in apposition to the posterior wall of the bladder. It was irregular in shape and by no means reniform, but corresponded to the variety described by French and German writers as the cake-shaped kidney (*rein en galette, kuchenniere*). The surface was lobulated. The organ measured $3\frac{1}{4}$ in. long by $1\frac{3}{4}$ in. broad at its upper part, and $2\frac{5}{8}$ in. in its lower part, and 1 in. thick. The weight was 4 oz. On section there was some dilatation of the pelvis and calices, but no marked degree of hydronephrosis. The hilus was situated anteriorly, and from it issued a single ureter, considerably dilated and hypertrophied, which measured $7\frac{1}{2}$ in. long, $\frac{1}{2}$ in. broad close to the kidney, and 1 in. broad at its widest part, $1\frac{1}{4}$ in. above its entrance into the bladder. At its lower extremity it became narrow again, and the lumen of the vesical end barely admitted a pin's head. No trace of a left kidney or ureter could be found. There was no malformation of the genital organs. The blood-supply of the kidney was unfortunately not examined.

The specimen is one of unusual interest, combining as it does the following rare conditions: (1) Unilateral renal defect, (2) congenital renal misplacement or dystopia, (3) dilatation and hypertrophy of the ureter, with congenital stricture at its vesical extremity.

In the first place, single or asymmetrical kidney (renal aplasia or agenesis) as distinct from solitary kidney which represents the fusion of the two organs is extremely uncommon, being found, according to Morris (20), in only 1 out of 2400 autopsies. Although about 300 cases are on record, many of them, especially those recorded by earlier writers, could not withstand criticism, some being examples of solitary rather than of single kidney, while in others there was renal atrophy rather than aplasia. In some cases the kidney and ureter on one side appear at first sight to be completely absent, but on close examination rudiments of these organs are discovered, though it may be only with the aid of a microscope (Sternberg (28)). Secker (27) alone of recent writers considers that renal aplasia is not a rare anomaly. Out of 8150 autopsies performed at the St. Johannes Hospital in Copenhagen, renal aplasia was found in 7, *i. e.* in 1 out of 1164 cases. Dorland (9), to whose valuable paper on renal anomalies I am much indebted, states that the single kidney is almost always normal in shape and position. Such, indeed, was the case in the last specimen of single kidney which I showed before

this Section (26), the organ being situated in the usual position in the loin, and though considerably enlarged, retaining its ordinary shape.

Congenital displacement of the kidney or renal dystopia, though unusual, is less uncommon than single kidney. Giuzzetti and Pariset (12) found it in 18 cases among 24,000 autopsies held at the Parma Pathological Institute from 1854 to 1910, or roughly in 1 in 1000 cases. Girard (10), however, regards dystopia as a more common event, and estimates its frequency at about 1 in 500. He quotes Naumann who, among 10,177 autopsies performed at the Kiel Pathological Institute from 1873 to 1896, found 21 cases, or 1 in 484.

The association of unilateral absence of the kidney with congenital misplacement is exceedingly uncommon. Girard, who has collected 360 cases of congenital renal ectopia, has found only 15 examples of this combination, and in only 6 cases was the single kidney situated in the pelvis—Chrétien (4), Cutore (6), Guelmi and Ciniselli (11), Hebb (13), Hénot (15), Mérier (19). Of the remainder, 2 were examples of low lumbar kidney, 4 of iliac kidney, and 3 of crossed single kidney. Of the 6 cases, 1 was a fœtus, aged 8 months; 4 were children, aged from 3 months to 10 years; and 1 a man, aged 47 years. In 4 the single kidney was on the right, and in 2 on the left side. In all but Hebb's case, in which two-thirds of the kidney was in the pelvis and one-third projected above the promontory, the kidney was situated low down in the pelvis.

The form of the kidney in pelvic dystopia is usually more or less modified, as was exemplified in the present case. In Mérier's case it was rounded, in Guelmi and Ciniselli's case it was elliptical, in Cutore's case it was flattened posteriorly, only in Hebb's case was it described as almost normal. This modification in shape, as Heiner (4) has shown, is at least in part due to the influence of the neighbouring organs, on which the form of the normal kidney is also dependent to some extent.

The remarkable dilatation and hypertrophy of the ureter were probably due to the narrowing of the vesical end of the duct, which is the most frequent site of congenital structure (Bottomley) (2)). Dilatation of the ureter was also a feature of the cases recorded by Cutore, Hebb, Chrétien, and Guelmi and Ciniselli, though in none of these cases is any explanation offered for the dilatation, except in Cutore's case, in which a calculus was found.

As a general rule, to which the present case conforms, dystopic kidney is discovered only by chance, either post mortem or in the course of an operation for some other condition. It is only in com-

Single pelvic kidney and dilated ureter with stricture at vesical end.

paratively exceptional cases, chiefly of a gynæcological or obstetrical nature, that symptoms referable to the kidneys arise. Of the six

previously recorded cases of single pelvic kidney the only one with renal symptoms was that of Guelmi and Ciniselli, their patient being a girl, aged 10 years, who died of uræmia due to parenchymatous nephritis.

Dystopic kidney was well known to the earlier writers. In the sixteenth century, cases were frequently related by anatomists. Thus, Caspar Baubin, who first described the ileo-cæcal valve, has figured in his 'Theatrum Anatomicum' a left kidney situated at the bifurcation of the aorta in front of the sacrum and supplied by vessels from the right iliac artery and aorta.

Similar cases were subsequently recorded by Eustachius, Bartholin, Botallo, and Wrisberg, but it is only comparatively recently that dystopic kidney has had anything more than an anatomical interest (Müllerheim (21)).

Thus, of 111 clinical cases of congenital renal ectopia collected by Girard in 1910, no less than 100 had been published since 1890. In about a third of Girard's cases the symptoms were due either to the misplacement alone or to actual disease in the dystopic organ. Apart from obstruction to labour caused by a pelvic kidney, the patient may seek advice for dysmenorrhœa or for digestive troubles. It is important, however, to realise that there is no pathognomonic sign of renal dystopia.

In at least three cases, and it is probable in several others, for such disasters are not readily recorded, a single dystopic kidney has been removed, death occurring six days (Oehler's (23) case), seven days (Buss's (3) case), or eleven days (Polk's (25) case) later.

Plummer (24), in his monograph on dystopic kidney, states that in two cases of excision of part of the kidney the autopsy showed there was no other kidney.

In Cullen's (5) case an exploratory operation was performed on a girl, aged 17 years, who had never menstruated. A large oval mass felt *per rectum* was thought to be retained menses, but was found on laparotomy to be a pelvic kidney, which was therefore left *in situ*. The uterus and vagina were absent.

The association of mental defect with a renal anomaly in my case is of interest. At least, three other examples of the kind have been published. In Albrecht's (1) case of abdomino-pelvic dystopia with pyonephrosis, the patient, a man, aged 30 years, showed considerable hydronephrosis, and was mentally deficient. Hochenegg's (16) patient, a woman, aged 52 years, with a left pelvic kidney, was an hysterical subject. In Israel's (17) case, the patient, a woman, aged 61 years, who was operated on for a right pelvic kidney, had to be

sent to an asylum. Israel thinks that the combination of renal dystopia and psychical disturbance is not a mere coincidence; but regards both these developmental errors as stigmata of degeneration.

Dystopic kidney is especially liable to disease, and this liability is remarkably increased if the dystopic organ happens to be a single one. According to Anders, as I pointed out in my last paper, 46·5 per cent. of all cases of single kidney show morbid changes, and 42·3 per cent. some form of chronic nephritis. Dystopic kidney is also liable to different forms of nephritis, as well as to hydronephrosis (Lafoscade (18)), pyonephrosis, calculus, tuberculosis, and sarcoma.

Though the dystopic kidney does not show any characteristic clinical symptoms, the anatomical features are fairly constant. In the first place, it is, as a rule, firmly fixed, in the absence of any inflammation, chiefly owing to the strength of its vascular pedicle by which it is anchored, whereas the kidney whose displacement is acquired is more or less movable, and only becomes fixed as the result of inflammatory adhesions. In some cases, it is true, as Delaforge (7) has shown, the dystopic kidney may become movable as the result of pregnancy or of trauma inflicted by the fœtal head during labour, but such cases are decidedly exceptional. Secondly, the shape of the dystopic kidney is rarely normal, whereas the kidney whose displacement is acquired usually retains its typical uniform appearance.

Thirdly, the blood-supply of the dystopic kidney is multiple: The arteries arise from the bifurcation of the aorta, the common iliac, external or internal iliac, median sacral and other neighbouring vessels, and the veins correspond. The blood-supply of the floating kidney, on the other hand, is the same as in the normal organ, the arteries arising from the aorta and the veins emptying themselves into the inferior vena cava.

Fourthly, the length and direction of the ureters are characteristic. The ureter of the dystopic kidney is always shorter than its normal fellow, and the lower the kidney the shorter the ureter will be. At the same time it affects a rectilinear direction, taking the shortest course to the bladder. In floating kidney, on the other hand, the ureter, though more or less curved, is of normal length. Delore (8) has pointed out that intermediate forms exist in which the ectopia is due both to congenital and to acquired causes. He also quotes a case of bilateral renal displacement in which the ectopia of one kidney was congenital and of the other acquired.

It is noteworthy that my case showed none of the genital defects which have been observed, both in cases of dystopic and of single

kidney. Some authors state that single kidney is always accompanied by genital anomalies, and the frequency of these anomalies in renal dystopia is shown by the fact that Heiner (14) has collected 35 such cases.

Of the previously recorded cases of single pelvic kidney 3 showed various genital defects. Thus, in Hénot's case there was no trace of a vulva or urethral opening, but only an imperfect vagina. In Guelmi and Ciniselli's case the uterus, broad ligaments, and vagina were absent, the ovaries were ectopic and lay on either side of the vertebral column at the level of the twelfth dorsal vertebra.

In Cutore's case there was no trace of a uterus or vagina, and the ovaries and Fallopian tubes were rudimentary.

Other anomalies have been associated with dystopic kidney, such as imperforate anus, supplementary spleen, four lobes to the right lung, etc. (Nurdin (22), Sträter (29)).

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Philadelphia Pediatric Society.

Tuesday, June the 10th, 1915.

Hyperplastic Pyloric Stenosis and Patent Foramen Ovale.—Dr. Ginsburg.—The history of this case was as follows: A first child; instrumental delivery. At birth the baby weighed 8 lb. Three weeks before admission to the hospital, after satisfactory nursing at the breast, it began to vomit, the vomitus being projectile in type. In spite of rectal feeding and modification of breast feeding the child continued to vomit, and was admitted to hospital at the age of 5 weeks. The baby weighed 5½ lb., and there was a palpable tumour in the region of the pylorus with epigastric peristalsis. Since the baby was steadily growing worse and food retention by the stomach seemed impossible, surgical intervention was determined upon. At operation through a median incision in the epigastrium, it was impossible to deliver the stomach owing to the firm immobilised pyloric end of the stomach which was greatly thickened. The pylorus was spindle-shaped and very thick, indicating enormous hypertrophy of its musculature. A posterior no-loop gastrojejunostomy was performed. Five days later, owing to the unsatisfactory state of the patient, the abdomen was re-opened, the posterior anastomosis closed, and an anterior gastro-enterostomy performed, making a big orifice. The baby ceased vomiting, except for an occasional eructation, and gained 15 ounces in the succeeding nine days. Food digestion took place, as evidenced by normal, yellow, bowel movements, and absence of vomiting. On the ninth day, when the baby apparently was doing well and recovery seemed certain, it developed a temperature and died. At autopsy a condition of the stomach showed an enormously thickened pylorus and a functionating gastrojejunal orifice. The surgery of pyloric stenosis includes a review of the surgery of pyloric obstruction from various causes in the adult. It would seem, from a hasty review of this subject, that pyloric resection with closure of the stomach and duodenum and gastrojejunostomy, pyloroplasty of the Finney type, and pyloroplasty of the Mikulicz-Heineke type, as well as incision down to the mucosa without suture, are all difficult, and at times, impossible procedures upon the infant. Dr. Ginsburg believes, from the work of Scudder in Boston and others, as well as from his own limited experience, that in hypertrophic pyloric stenosis with almost complete occlusion of the pyloric passage, that the operation of choice is posterior gastrojejunostomy.

Roentgenographic Studies in Children.—Dr. Pfahler demonstrated about thirty-five lantern slides of interesting cases occurring in children varying in age from fœtal life to the beginning of adolescence.

The first was a series of fractures and injuries to the bones, giving rise to obscure symptoms, which could only be clearly diagnosed by means of the Roentgen rays. In one case an oblique fracture of the femur was found in a child of 6 weeks in whom there had been no history of an injury, and because of the extreme tenderness, swelling, and accompanying fever, the thigh was incised for an abscess, and when no abscess was found it was thought to be sarcoma. The roentgenogram showed clearly an oblique fracture, causing the symptoms.

There were then a series of diseases of bones and joints, which, because

of the youth of the patients, could not be clearly diagnosed except by means of roentgenographic studies.

Several cases of enlarged thymus were demonstrated, which had produced asthmatic breathing with paroxysms of supposed croup, which symptoms were completely relieved by Roentgen treatment.

Several cases of sarcoma of the jaw were shown, demonstrating the disease and the healing influence of the rays, the patients being entirely well from two to six years.

Cases of dilated hearts and obstruction of the bowels were also demonstrated.

As a whole, the object of the demonstration was to show the importance of making use of the Roentgen rays in the study of obscure cases in children.

Common Eruptive Conditions in Children.—Dr. Jay F. Schamberg exhibited a series of slides illustrating the common eruptive conditions observed in children. First there was a series of illustrations of vaccinia in children born of mothers suffering from smallpox. The experience of Dr. Welch and Dr. Schamberg was not in consonance with that of Prof. Roger, of Paris, who claimed that the vast majority of children born during or immediately after a maternal attack of smallpox were insusceptible to vaccination. While it was true in some cases, it constituted a very small percentage of the infants thus born. Children vaccinated during the first weeks of life appeared to develop less constitutional reaction than older children.

Several slides were shown to contrast the eruption between chickenpox and smallpox. The fact was emphasised that the number of lesions and the amount of fever present were no safe guides as to the diagnosis. The diagnosis was based on the distribution of the eruption, the presence or absence of the prodromal illness, the depth of the lesions in the skin, their uniform character in smallpox, and their multiform character in chickenpox.

There was next exhibited a photograph of a child with measles with a closely aggregated papular eruption simulating the exanthem of scarlet fever. Dr. Schamberg said that he had but recently made an error of diagnosis in such a case in which an accidental coryza swayed the diagnosis in favour of measles, whereas a subsequent typical desquamation of the fingers demonstrated that the case was in reality scarlet fever.

Slides were shown of infantile eczema and also of certain infantile eczematoid eruptions due to pyogenic micro-organisms, and resulting from the contact of the discharges from the eyes, nose, and ears. The causes of infantile eczema were still obscure, but recent investigation would indicate that certain foodstuffs for which patients had special idiosyncrasies might be responsible in many cases. Where a child was fed on maternal milk an excess of fats might be a factor.

Another series of slides showing the various forms of tuberculosis of the skin in children was shown. A case of considerable interest was that of a child who developed an attack of warty tuberculosis on the sole of the foot, presumably following some local infection through a wound. It developed a femoral adenitis which suppurated, and in the discharge were found tubercle bacilli.

A number of varieties of ringworm of the scalp and smooth skin were demonstrated. Dr. Schamberg referred to the fact that ringworm of the skin was commonly contracted from cats, dogs, and other domestic animals,

and that under such circumstances the number of lesions was usually much greater than when contracted from the human subject.

Several varieties of bromide eruption in children were exhibited, and emphasis was placed upon the fact that nursing infants may develop characteristic fungating bromide lesions through the drug imbibed in maternal milk. Another point of interest was that lesions of bromide eruptions may continue to appear several weeks after the last dose has been taken, in view of the very slow elimination of the drug. Dr. Schamberg had seen a number of bromide eruptions in children in which there had been a suspicion of smallpox on the part of the practitioner in charge. Relatively few infants were susceptible to the bromides, but the characteristic bromide eruption is most disfiguring in appearance and alarming to the parents.

Demonstration of Skiagrams.—Dr. W. F. Manges first showed a very interesting series of skiagrams of the skull illustrating cases of internal and external hydrocephalus, and cases of injury to the skull. He emphasised the point that no matter how soft the tissue pressing on the cranium, it would eventually leave its mark on the bone. This was brought out very well by some pictures of a case which he diagnosed as glioma, and which was proved by operation.

Some cases of mastoid involvement were shown, and the contrast between the normal mastoid cells and those filled with exudate was clearly depicted on the screen. Dr. Manges here spoke of the importance of the X ray as showing the line of the lateral sinus.

Some thymus cases were shown. Often the single treatment by X ray would cause a disappearance or a marked lessening in the size of the thymus shadow. This was probably due in many cases to the fact that at the time the first picture was taken the thymus was temporarily congested.

The contrast between early and late tuberculosis in the hip was the next series.

When showing some pictures of a congenital dislocation of the hip, Dr. Manges spoke of the fact that the X rays were not so necessary for the diagnosis, as that was usually easily made, but X rays showed the very important point as to whether the acetabulum was sufficient to receive and retain the head of the bone.

Other plates shown were a tubercular ankle, congenital dilatation of the colon, and a series of fractures. One of these latter was very interesting in that it showed an injury to the elbow, with the head of the radius broken off and in very poor position, and in spite of this the child was very comfortable in Jones' position. Without the use of the X rays in this case a very bad deformity would have resulted.

Abstracts from Current Literature.

Diseases of the Circulatory System.

A case of congenital heart disease (*'Am. Journ. Dis. Child.,'* 1915, x, *p.* 27).—**J. L. Morse** records a case in a boy, aged 8½ years, who had been blue since he was 4 months old, and had always been feeble and dyspnœic.

The fingers and toes were clubbed. The red cells varied between 7,800,000 and 13,675,000. The right border of the heart was 4·5 cm. to the right of the median line and the left border 11 cm. to the left of the median line. The upper border was at the lower border of the second rib. There was a high-pitched murmur beginning just before the first sound, accompanying and continuing a little after it. The second sound was accompanied by a long rough murmur, loudest in the third left space. The liver was enlarged. The spleen was not palpable. Death took place suddenly. The necropsy showed complete congenital atresia of the pulmonary artery, congenital defect of interventricular septum, persistent ductus arteriosus, acute vegetative endocarditis of the aortic valve, and on the inferior border of the interventricular opening, thrombosis of the ductus arteriosus, patent foramen ovale, and dilatation and hypertrophy of the right ventricle.

J. D. Rolleston.

Congenital pulmonary stenosis (*'Lancet,'* 1915, II, *p.* 976).—**D. Martin** briefly describes four cases of congenital pulmonary stenosis in children without the usual obvious signs, the condition being discovered during the routine examination of school medical inspection. In the author's opinion the cases serve as an illustration of the utility of the medical inspection of school children for the detection of unrecognised conditions requiring treatment and care. Such precautions will undoubtedly maintain, and ultimately increase, the virility of the future generations.

J. Allan.

Congenital dextrocardia, with patent interventricular septum (*'Am. Journ. Dis. Child.,'* 1915, X, *p.* 1).—**R. D. Moffett** and **S. Neuhof** record a case in a boy aged $3\frac{1}{2}$ years. The family history was negative as regards rheumatism, syphilis and tubercle. The patient was a full-term child who had always been blue and short of breath. The fingers and toes were clubbed. The heart showed a strong heaving impulse in the right axillary line and in the epigastrium. There was a marked systolic thrill over the entire præcordium, most marked at the lower end of the sternum and in the epigastrium. The apex-beat was felt most prominently 6·5 cm. to the right of the mid-sternal line. On percussion the left border was at the left sternal margin. The right border in the 6th space was 9 cm , in the 5th space 8 cm., in the 4th space 7 cm., in the 3rd space 5 cm., and in the 2nd space 3 cm. to the right of the mid-sternal line. There was a loud systolic murmur corresponding to the area of palpable thrill. X rays and an electro-cardiogram confirmed the diagnosis of dextrocardia, a correlation of the physical and fluoroscopic signs—thrill and murmur over the entire præcordium, but most prominent at the xiphoid; apparent absence of the radiographic shadow of the pulmonary artery; an enlarged "left" auricle; an enlarged "right" auricle, "left" and probably also "right" ventricle, pointed towards patent foramen ovale and interventricular septum as the probable congenital lesions. Death took place, but no necropsy was obtainable. The writers have collected 126 cases of dextrocardia from the literature since 1649, including those of Carpenter (British Journal of Children's Diseases, 1904, I, *p.* 160, and 1909, VI, *p.* 144), Beronguer (*ibid.*, 1913, X, *p.* 282), Culcer-Petresco (*ibid.*, 1913, X, *p.* 282), and Neuhof (*ibid.*, 1914, XI, *p.* 84).

J. D. Rolleston.

Differentiation between functional and organic cardiac disease in children (*'New York Med. Journ.,'* 1915, CII, *p.* 191).—**M. H. Bass**

first emphasises the importance of the diagnosis with regard to the life of the child, whether it should be allowed to romp with its companions or to lead the life of an invalid. He quotes cases of children suffering from "heart weakness" without organic disease occurring in those suffering from orthostatic albuminuria showing symptoms of dyspnœa, palpitation, præcordial distress and pain, and so simulating organic disease. There were no murmurs, and the heart was normal in size, shape, and position. The type of child is often suggestive. The patients are often about the age of puberty, have grown rapidly, and are thin and narrow-chested. The scapulæ project, the abdomen protrudes, and there is lumbar lordosis. The epigastric angle is narrow and the tenth rib is free. They flush easily and the vasomotor system is unstable, as shown by very red lips, pale face, blue, cold, and clammy hands. This type is called by Mackenzie X disease. The heart should be examined by the X rays, as often the narrow thorax gives the impression of increased size, especially to percussion. This should be allowed for. The heart shadow is often elongated and narrowed, so-called "drop heart," or the apex may be unduly rounded, indicating ventricular hypertrophy, a sign that the condition is organic. Functional cardio-pulmonary murmurs are very commonly mistaken for organic; they often vary in intensity with respiration or by pressure of the stethoscope. Schlieps says they only occupy the middle part of the systole, and believes this is quite characteristic. There may be an "atonic" murmur which is identical with that of mitral regurgitation, and can only be differentiated by other signs than murmurs. Irregularity of the pulse is found in 63 per cent. of unselected school children, and so is not a sign of disease; it is due to disturbance of vagus control and often disappears on exercise, the pulse at the same time becoming smaller. The radial artery sometimes feels thickened; this is not due to arterial disease. It varies from time to time and is dependent on the vasomotor control, and is not accompanied by any increase of blood-pressure. J. Porter Parkinson.

Heart disease in childhood ('*Am. Journ. Obstet.*,' 1915, lxxii, *p.* 176). —**H. E. Tuley** emphasises the fleeting character of endocardial murmurs in children. Right-sided lesions in the infant indicate a fœtal endocarditis of septic or rheumatic origin. Cyanosis with enlargement of the cardiac dulness or palpable thrill, or both, is one of pulmonary stenosis. If a baby dies shortly after birth the most probable lesion is pulmonary stenosis alone; but if it survives, the stenosis is associated with some other lesion. If the murmur is of the humming-top variety and propagated into the vessels of the neck, the associated lesion is probably open ductus arteriosus. If neither of these characteristics be present the complicating abnormality is defective interventricular septum. A murmur not propagated into neck accompanied by cardiac enlargement and no cyanosis is a case of deficiency of the interventricular septum alone. If the murmur is transmitted and is of the humming-top variety a patent ductus arteriosus is also present. Rheumatic nodules are frequently found in the myocardium, and if in the neighbourhood of the Bundle of His may interfere with ventricular contractions. The subjective symptoms of præcordial pain, palpitation, syncope, and cyanosis are common in myocarditis, but do not occur in endocarditis. The blood-pressure in children varies from 80 to 113 mm. of mercury. It rises in direct proportion to size and weight. The immediate mortality of rheumatic carditis is 20 per cent., and if the cases be followed for ten years 60 per cent. If the child survive puberty the

prognosis is relatively good. In the presence of rheumatic endocarditis the tonsils, however slight the enlargement, should be removed. Six weeks' rest in bed, followed by massage and passive movements, should be insisted on in all cases. Rigg's disease is a serious complication, and should be treated by emetine. Strychnine is not recommended. The ice bag is approved, and digitalis and strophanthus for the stage of ruptured compensation.

CHRISTOPHER ROLLESTON.

Endocarditis in children, its prophylaxis and treatment in an out-patient department (*'Boston Med. and Surg. Journ.,'* 1915, CLXXIII, *p.* 348).—**R. S. Eustis** writes a preliminary report after nine months' study of the above subject. The questions before him are two in number: first, is it possible to treat heart cases with prolonged rest at home with only such supervision as can be carried out from a hospital out-patient department? To this question the author returns an answer in the affirmative provided that some such method as he details is employed. The second question which he sets himself is—does this prolonged rest prevent the development, or moderate the severity, of chronic heart disease in later life? To this question, which most regard as settled, the author is not yet prepared with a reply from his own experience. The supervision from the out-patient department is conducted partly by the doctor in charge and partly by a social worker who visits and reports on the home treatment of each case on the lines of a tuberculosis "dispensary" in this country. The paper hardly brings out sufficiently clearly, perhaps, the importance of estimating the presence or absence of *active* rheumatic infection before drawing conclusions about the value of rest or any other line of treatment. Taking all cases, the author regards the percentage of his series in which endocarditis was present as 25 per cent. or less. Taking only such cases as were not regarded as showing endocarditis when first coming under treatment, he finds that only 6·8 per cent. developed it, while 18 per cent. more were grouped as "suspicious." As will be seen from this short *résumé* of his paper, the writer lays a great deal of stress on valvulitis as opposed to myocarditis.

REGINALD MILLER.

Notes on rheumatism in children (*'Lancet,'* 1915, I, *p.* 1284).—**Mary H. Williams** believes that rheumatism is a disease which almost always begins in early childhood, and that in its crippling effects it is second to none. It is responsible for a large amount of heart disease and for an infinitely larger number of cases of ill health which are frequently labelled "debility." The author discusses the significance in children of "growing pains," pyrexia, tachycardia, nervousness, "bilious attacks," chorea and anæmia—many of which conditions should, in her opinion, be regarded as of rheumatic origin. She maintains that heart disease in the child is practically always due to rheumatism. Three important points in treatment are (*a*) rest; (*b*) "keep warm and dry"; and (*c*) good food.

J. ALLAN.

Articular rheumatism, endocarditis and pericarditis in scarlet fever (*Bull. et mém. Soc. méd. Hôp. de Paris,* 1915, XXXIX, *p.* 793).—**Nobécourt, J. des Camiers and Tournier.**—Among 262 cases of scarlet fever in soldiers, 22 developed rheumatism, 6 of these presented endocarditis, which in 2 cases was associated with pericarditis. The mitral valve was

affected in all the 6 cases, and in 2 of them the aortic as well. All recovered (cf. British Journal of Children's Diseases, 1915, xii, *p.* 20).
J. D. Rolleston.

The value of prolonged rest in the treatment of heart disease in the young (' *Lancet*,' 1915, ii, *p.* 602).—**G. D. Barton.**—This paper is based on five years' results of a cottage home for the treatment of valvular disease in boys. It has been found that if the heart lesion has been brought on by chorea the cases do not do so well as those where valvular trouble due to acute rheumatism is being dealt with, and this may be attributed to the impossibility of keeping the boy quiet enough with other boys playing around him. The cases where compensation has hopelessly broken down begin with a month in bed—perhaps two or three months. When the boy begins to get up he starts making wool mats, rugs, etc., which gives him an interest and keeps him employed. Later, when he can walk half a mile or so, he earns a little money by cleaning brass work at one of the private houses near by, and later still he goes out for the whole morning as boot-boy, cleans bicycles, etc. Then, if he likes private service, a permanent situation is found for him. The success in the majority of cases appears to be due more to prolonged rest, good food and country air than anything else, digitalis and other heart drugs being occasionally required. J. Allan.

Some problems connected with the out-patient treatment of children with heart disease (*'Boston Med. and Surg. Journ.*,' 1915, clxxiii, *p.* 352).—**Clara M. Welsh** starts with the idea that "heart disease is a social disease and needs social treatment," and she writes of her four years' experience as a social worker among 264 children afflicted with heart disease. Evidently for strict rest in bed to be undertaken at the child's home, the visitor will have many difficulties to encounter with "unbelieving parents." Nevertheless she is of opinion that where home treatment can be really properly carried out, it is superior to convalescent home treatment.
Reginald Miller.

Rupture of heart in a child (' *Lancet*,' 1915, i, *p.* 647).—**J. Anderson** reports this case, which is of interest, (1) on account of the age of the child, and (2) on account of the occurrence of a congenital stenosis of the coronary arteries and other manifestations of inherited syphilis. The history was meagre and unsatisfactory. The child, a somewhat neglected and poorly nourished girl, 5 years of age, was alleged to have had good health up to the morning of her death. The woman in charge left the child in bed in the house by herself, and on her return about half an hour later the child was found sitting on the floor, looking ill and complaining of sickness. Death occurred before medical assistance was obtained. At the necropsy the pericardium was found distended with fluid blood. A hæmorrhagic area, 1 in. in length by $\frac{3}{4}$ in. in breadth, was noted on the anterior aspect of the heart along the line of the interventricular septum at its upper third, and also a small perforation within this area. The lesion which had given rise to the rupture was of remarkable character; a hæmatoma, $\frac{1}{4}$ in. in diameter, had formed in the wall of the left ventricle and septum. Its cavity was filled with blood clot and its walls were ragged and granular. At its lower aspect it had ruptured externally into the pericardium. The thinned inner wall communicated with the interior of the ventricle by a

large and irregular aperture, which was continuous with an extensive rupture across the inner portion of the posterior wall of the chamber. The torn area almost encircled the ventricle and reached as far as a point, immediately beneath the position of the left auricular appendix. The right ventricular wall was intact. The valves were of normal size, and their curtains were healthy. Examination of the coronary vessels showed a stenosis of the lumen of both arteries, and the descending branch of the left coronary artery was obliterated at the seat of the rupture and could not be traced beyond it. The histological change in the liver was such as is associated with congenital syphilis—viz., a pericellular cirrhosis. The changes in the kidneys were of the nature of the combined catarrhal and interstitial nephritis which has been met with in syphilitic infants. The presence of spirochætes was demonstrated in the heart muscle, but only after careful examination, and their numbers were few. In the kidneys they were obtained with less difficulty and were more abundant, but in spite of the presence of miliary gummata it was impossible to say that they were present in the liver. J. Allan.

Angina pectoris (*'Edin. Med. Journ.,'* 1915, II, *p.* 393).—**Byrom Bramwell,** in the course of an interesting and instructive paper, reports a case of typical and severe angina pectoris in a boy, aged 13, who had complained of recurring attacks of severe pain in the chest, radiating to the back, to both arms and both legs, of one year's duration. The patient had had shortness of breath on exertion as long as he could remember, and suffered from bronchitis every winter since he was 7 months old; measles at 4 years of age; whooping-cough at 5 years of age; never rheumatism, scarlet fever, or chorea. Formerly the attacks of pain came on only as the result of exertion and excitement, but latterly they occurred even while he was at rest in bed, without any apparent cause. Attacks of pain lasted about three minutes. Pulse 78; regular, small, low tension. Apex beat in the fifth interspace in the line of the nipple; pulsation in the fourth interspace and the epigastrium. Heart enlarged towards the right, dulness extending three-quarters of an inch to the right of sternum. Soft systolic murmur in the mitral area; loud systolic murmur projected into the arteries of the neck in the aortic area. Apex beat seemed fixed and there was some systolic retraction. Slight bronchitis and some emphysema. Treatment consisted in rest in bed, allaying the bronchitis, and the administration of arsenic and strychnine, and after three weeks in hospital the boy was discharged very much improved. J. Allan.

The blood-pressure in children showing orthotic albuminuria (*'Arch. Int. Med.,'* 1914, XIII, *p.* 39.)—**M. H. Bass** and **W. Wessler,** from examination of 26 cases, came to the following conclusions: The blood-pressure of children suffering from orthotic albuminuria differed but little from that of normal children. In spite of the apparent vaso-motor insufficiency which many of the children showed, the blood-pressure both in the upright and recumbent positions, and also after exercise, revealed no characteristic anomaly. Nor could the blood-pressure findings be correlated in any way with the findings in regard to the heart's shape and size and the pulse rate. Children with orthotic albuminuria who showed marked cardio-vascular symptoms could not be differentiated by blood-pressure tests from the remainder of the group. J. D. Rolleston.

Reviews.

THE PRIMARY LUNG FOCUS OF TUBERCULOSIS IN CHILDREN. By A. GHON. Authorised Translation from the German by D. BARTY KING, M.D. Pp. xxiv + 176. With Illustrations. London: J. & A. Churchill. 1916. Price 10s. 6d. net.

THE primary focus of pulmonary tuberculosis in childhood was described most carefully by G. Küss in 1898. He found it to be a small subpleural focus, habitually in the lower lobes, nearly at the apex. He also noted the invariable involvement of the lymphatic glands at the root of the affected lung, often with retrograde infection of adjoining groups of glands. He concluded that the infection was aerogenous. Nine years later E. Albrecht came to very similar conclusions, applying them to the pulmonary tuberculosis of adults as well as of children. In 1903 Prof. Ghon, of Prague, began to study the question, and his results are contained in the detailed essay now before us in the translation made by Dr. Barty King. These results generally confirm the views of Küss and Albrecht. In the course of two and a half years of post-mortem work at St. Anne's Children's Hospital in Vienna, between 1907 and 1909, Ghon made most careful autopsies on 184 cases with pulmonary tuberculosis. His essay consists in the description and analysis of the distribution of the tuberculous lesions of the lungs in these cases; in all of them the autopsy was made very thoroughly, particularly as regards the lymphatic glands and the portals of infection with tubercle bacilli. To quote a few of Ghon's conclusions, it may be said that he was able to dissect out a primary focus in the lung in 170 of his 184 cases. Of the 170 patients, 80 were aged two years or less. Pleurisy, in the form of adhesions or scars, was found in two-thirds of these 170 cases. The tuberculosis affected one lung in 161 instances, both in 9, the right lung being involved in 96, the left in 65 of the 161 patients, and in a considerable majority the lesion affected only one lobe. The upper lobes were more often infected than the lower, a conclusion opposed to that reached by Küss. In the case of both apices the anterior surface was the part most often attacked, and throughout the lungs the tuberculous foci occurred more often near the periphery than centrally. Ghon gives anatomical reasons for supposing that the pulmonary infection is usually bronchogenous (or air-borne) in children, and almost always gives rise to a secondary infection of the adjacent lymphatic glands. In no case was the glandular tuberculosis apparently of longer standing than the pulmonary tuberculosis; a retrograde infection of the lung from the glands was not ever observed, whether by the lymphatics or by the blood-stream. Discussing the 14 cases in which there was evidence of tuberculosis of the glands at the roots of the lungs (7 cases), or of tuberculosis with some non-pulmonary portal of infection (5 cases), or in which a positive tuberculin reaction was obtained during life without the discovery of any tuberculous lesion in the body post mortem (2 cases), Ghon shows how little these instances affect his general conclusions. Dr. Barty King has done his work as translator efficiently, though on p. 124 the word "*later*" should be "*earlier*." The book is one of great interest to those who are interested in either tuberculosis or the diseases of children, and should be widely read. A. J. J.-B.

Guy's Hospital Reports. Edited by F. J. Steward, M.S., and H. French, M.D. Vol. lxviii. Pp. 187. London: J. & A. Churchill. 1914. Price to non-subscribers, 10s. 6d.

The war has delayed the appearance and considerably reduced the size of these well-known reports. The volume opens with a sympathetic notice of the late Mr. Thomas Bryant by Mr. Golding Bird, followed by a bibliography of Mr. Bryant's published writings, compiled by the Wells Librarian. Mr. Charles Higgens contributes an extremely entertaining article on "Charlatans and Miracles," in which he first describes the methods employed by various quack oculists, and then relates some of the "miracles" wrought by himself on persons who were either the victims of hysteria or malingerers, including two children, aged 13 and 14 years respectively.

Dr. W. Jobson and Mr. W. M. Mollison record "A Case of Tumour of the Left Cerebello-pontine Angle" in a boy aged 14 years. The growth proved to be a glioma with cystic dilatation. Some improvement followed puncture and drainage of the cyst, but hernia cerebri developed and death took place about a month after the operation. Dr. M. S. Pembrey has an attractive paper, entitled "The Advantages of Physical Games over Set Exercises," from which we quote the following: "There is a medicinal flavour about set exercises; some are called nutritive, others corrective, and others depletive. Most of them cause undue fatigue, lack interest, and are monotonous. The breathing exercises are unsound in theory, and in practice increase the danger of infectious diseases, owing to the spray of saliva discharged from the mouth. . . . The child's games are the ancestral means of training, and any attempt to displace them by systems of physical culture based upon set exercises is a sign of ignorance."

In a "Note on Urobilinuria in Heart Failure," Mr. E. J. Cooke and Dr. N. Mutch show that urobilinuria serves as a delicate indication of over-distension of the hepatic venules caused by partial cardiac failure.

Drs. Pembrey and S. H. Ryffel write on the "Clinical Significance of Respiratory Variations in Health and Disease." Dr. R. A. Chisolm contributes a review, entitled "Some Problems of Experimental Nephritis," followed by a bibliography of 135 references.

The only article relating to the war is a paper by Mr. Lindsay Locke on The X-ray Appearances of Some Bony Injuries caused by Modern Projectiles."

The volume concludes with an account of the new laboratories of the Bacteriological Department at Guy's Hospital by Dr. J. W. H. Eyre.

J. D. R.

Your Baby: A Guide for Young Mothers. By Edith B. Lowry, M.D. Chicago: Forbes & Co. 1915. Price $1.

Dr. Lowry has written a very useful little book upon the care and education of the infant. It combines in an unusual degree medical knowledge, simplicity, and sound common sense. In one or two particulars we note a difference of practice between this country and the United States. For instance, we are told on p. 204 that "after a baby is a year old, it is best to have vaccination performed," and as to its necessity it is urged that "it is best to be on the safe side." Sometimes Dr. Lowry seems to us to exaggerate. It is well to sound a bold note at the beginning of a preface, but we know of no evidence to support this statement, the first in the book: "It is estimated that nearly half the babies born into this world die before they are a year old."

Nevertheless the book takes rank among the best of its kind. H. C. C.